

THE VOLUNTARY PROVISION OF SNOWMOBILE TRAILS
ON PRIVATE LAND IN SWEDEN¹

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ABSTRACT

A snowmobile trail canalizes snow-covered land to create a path of snowmobile travel. This form of communication infrastructure yields two kinds of benefits. First, it reduces negative externalities befalling landowners and other non-drivers. Second, it improves driving conditions for both local inhabitants and leisure tourists enjoying outdoor recreation. The extensive voluntary provision of snowmobile trails in Sweden is an example of how local common-pool resource dilemmas are resolved through self-organization, outside formal markets and beyond governmental politics.

INTRODUCTION

From the 1960s to 2001, the number of snowmobiles registered in Sweden increased from 28,000 to about 232,500.² Most snowmobile driving takes place in the thinly populated north of Sweden.³ Two-thirds of the snowmobiles are registered to northerners, an average of 12 percent

² The number is according to the Swedish Television's consumer information program Plus (http://www.svt.se/umea/plus/veckans/snoskoter/body_snoskoter.html). According to the Swedish Institute for Transport and Communications Analysis (SIKA) the total number of cross-country scooters are 242,777, of which about 145,734 are in use (http://www.sika-institute.se/databas/data/t20tab4_01.pdf).

³ Less than 900,000 people live in the northern part of Sweden. The density is 4 individuals per square kilometer (or 10 individuals per square mile).

per capita ratio or about one snowmobile for every eight persons (Hultkrantz and Mortazavi 1998 p. 36). In the interior of the countryside regions of Lapland the per capita ratio is above 40 percent; almost every household owns at least one snowmobile (Hultkrantz and Mortazavi 1998, p. 36 and footnote 8).⁴

To northerners, snowmobiles have substantial advantages over alternative means of transportation. A snowmobile is a fun, fast, and safe way to travel in the winter. Traveling at speeds comparable to car driving, one can drive it across virgin snow-covered land. Snowmobiles achieve excellent travel time and access to virtually all points. Snowmobiles are also an attraction for winter tourists, giving local entrepreneurs an opportunity to make a living in a region of Sweden with high rates of unemployment and out migration. Snowmobiles greatly increase the quality of life for many northerners, including the Sami and forestry owners, who nowadays often use snowmobiles in their production.

Environmentalists and government officials have concerned themselves with snowmobiling, which has now become a matter of intense debates. The adversaries point out that snowmobiles are noisy (SOU 1993:51), pollute the air (SOU 1995:97; Svanberg & Lindskog 1995), tread on the vegetation (Ds 1995:15), and disturb wildlife (Ds 1994:36). Also, snowmobiling sometimes interferes with agriculture, forestry, and reindeer herding (Ds 1994:36; SOU 1995:100), and cross-country skiing tourists (SOU 1995:100). Indeed, snowmobile driving has been called a threat to the sustainability of the Swedish mountains (e.g. Ds 1995:15; SOU 1995:100).⁵ As with all highly politicized issues the facts of the matter are highly contested (cf. Wallsten 1997; Hultkrantz 1995,

⁴ The municipalities mentioned by Hultkrantz and Mortazari (1998) are Sorsele, Storuman, Arjeplog, and Jokkmokk. All four have population densities of less than 1 individual per square kilometer (SCB 2002, p. 58).

⁵ Other problems are sometimes brought up, such as snowmobile drivers having accidents and drive drunk (VV 1998; Öström & Eriksson 1998).

p. 17). The snowmobile is a controversial vehicle and its use, or misuse, is subject to investigations and policy proposals from many different quarters.

Except for twelve mountain-region zones covering 20,000 square kilometers where snowmobiling is prohibited, the current institutional structure in Sweden allows snowmobile driving across both public and private land if the snow cover is sufficient, if driving does not intrude on people's privacy, and if it does no damage to land and vegetation.⁶ But under any law, snowmobile driving is very difficult to police. The northern landscapes are vast and open. Even when a landowner or official discovers a scofflaw snowmobiler, the high speed and face-covering helmets make identification and apprehension very difficult.

An investigation by officials of Västerbotten County suggests that national legislation against trespassing would have little effect on snowmobiling. They studied snowmobile traces in areas where snowmobile driving is forbidden and found trespassing to be quite common (Ds 1994:36).

Snowmobiling and cross-country skiing take place on private and public lands characterized by open access (cf. Ds 1994:36), de facto as well as de jure (SOU 1995:100; Prop 1995/96:226). A landowner does not have the right to exclude snowmobile drivers nor to charge snowmobile drivers for access. Using the landscape can lead to land deterioration. Because tourism landscapes exhibit resource subtractability and open access, they are a common pool resource.⁷

⁶ The twelve prohibition zones covers approximately a fifth of the mountain region and are located in remote places far from roads. The legislation concerning snowmobiles are found in Terrängkörningslagen, Körkortslagen, Terrängkörningsförordningen, Naturvårdsförordningen, Terrängtrafikkungörelsen, Vägtrafikkungörelsen.

⁷ See Healy (1994) on tourism landscapes, Oakerson (1992) or Ostrom et al (1994) on CPR-dilemmas. See McKean (1996) for a discussion of the snowmobiling landscape as a complex resource system and the difficulties that implies when one is identifying a CPR. See Anttila (1999) for an argument that the snowmobile issue qualify as a strict CPR-dilemma.

Like other commons, tourism landscapes are vulnerable to overuse and deterioration (see Abrahamsson 1998; Hultkrantz and Mortazavi 1998; Ostrom 1990; Pedersen 1993).

In the tourism landscape, a snowmobile driver can drive across untouched land, much like a cross-country skier. Unlike a cross-country skier, a snowmobile is heavy, noisy, and emits exhaust fumes.⁸ Snowmobile drivers are thus more likely than skiers to generate negative externalities for landowners.

An official report indicates that snowmobile driving can be a burden to owners of forestry and agriculture (SOU 1994:16). Problems caused by the snowmobile include damages to tree plants and young forests, packed snow and ice on roads, ice damages on arable lands, deeper frost in the ground, frozen drains, damaged fences, and so on. The report estimates the cost of damages to land used for agriculture to be less than 10 million Swedish crowns (SEK) and to forestry 1-2 million (SOU 1994:16, pp. 35, 44). Though small, the costs can be significant for particular landowners.⁹ For instance, snowmobile traffic traversing urban areas and tourist destinations sometimes upsets livestock breeding and extensive agriculture.

The best way to reduce problems is for drivers to keep to established snowmobile trails. A snowmobile trail is a marked, groomed and in other ways prepared seasonal route for snowmobile driving. They are widespread in snowy parts of the USA, Canada, and the Nordic countries. A snowmobile trail canalizes traffic and thereby reduces problems for the landowner.

⁸ Snowmobile drivers' use of the land thus subtract from cross-country skiers' use of the land, but not necessarily vice versa, see Anttila (1999) for a discussion of this semi- or pseudo-subtractability. It should also be noted that many landowners, reindeer herders, and cross-country skiers are also snowmobile drivers.

⁹A number of writs to the Minister of Environmental Issues indicate that this might be the case (Dnr 1995/3067/2/P1; Dnr 1995/2084/2/P1; Dnr 1995/1699/2/P1).

For tourists and local inhabitants, a snowmobile trail constitutes an efficient transportation infrastructure.

THE GAME BETWEEN LANDOWNERS AND SNOWMOBILERS

In a context of simple, functional market mechanisms, if establishing a service would be socially valuable, that creates opportunities for entrepreneurs to profit by establishing the service and collecting fees from users. In the case of snowmobile trails, however, the cost of charging, collecting, and enforcing user fees would be high. In other words, it would be exceptionally costly to exclude non-payers from the trail. Hence, though socially valuable, the provision of snowmobile trails cannot be organized along simple market lines. A snowmobile trail, in other words, is a lot like a public good (see Olson 1965).

There is some logic in thinking along the lines of a prisoner's dilemma, as in Table 1. The landowner can either allow the establishment of trails or refuse establishment of trails. Since each individual landowner is better off if the trail is drawn across someone else's land, each landowner is inclined not to allow the trail. The snowmobilers, assumed to behave as a single agent, can either not keep to the trail or keep to the trail. The best outcome for the snowmobiler is when trails are established and she can choose whether to keep to the trails or not. The predicted outcome then is unrestricted appropriation, which is sub optimal since both actors are worse off compared to a situation where trails are established and snowmobile drivers strictly follow the trails.¹⁰

¹⁰ Since it can be argued that the strategies leading to the optimal outcome are constitutionally feasible, in the sense that there exists a consensus that this is the better alternative, the interplay between snowmobilers and landowners, with reference to snowmobile trails and landscape resources can theoretically be defined as an CPR -dilemma (cf. Anttila 1999; Ostrom et.al 1994).

Players		Snowmobiler	
		Do not keep to trail	Keep to trail
Landowner	Decisions		
	Refuse establishment of trail	1	0
	Allow establishment of trail	3	2
		0	2

Table 1: Land use as a game between landowners and snowmobilers

In the background is a game among the local landowners. By allowing snowmobile trails on his land, a landowner alleviates the snowmobile nuisance on the land of others. They need to overcome the potential free riding among them. Landowner free riding is captured in the often-used phrase “Not In My Back Yard” (or NIMBY-situation).

THE PRACTICALITIES OF SNOWMOBILE TRAIL PROVISION

In order to establish a snowmobile trail, an agreement must be reached between the landowner and those responsible for building and maintaining the trail. The agreement has to be preceded by consultation with the county administration (Dannevall & Berglund 1993; SNV 1997).

After reaching an agreement, the trail can be prepared. The preparation of a trail includes grooming the trail – flattening the snow by dragging a flattening device after a snowmobile –

removal of trees and bushes, building bridges over water, and putting up traffic signs and trail markings.

In addition, a trail needs to be maintained. Heavy traffic might create ruts in the trail and rapid acceleration and braking may result in uneven, bumpy trails. Such wear and tear makes driving difficult and the trail less efficient. Overuse or bad maintenance make trails less attractive and make snowmobilers more inclined to depart from the trail. Thus, trails are not simply traces left in the snow by a snowmobile.

GOVERNMENT PROVISION OF TRAILS

Traditionally, the suggested solution for a common pool resource dilemma would be for the government to provide the public good; roads, sewage, and parks are common areas where this solution has been applied. Government provision of trails would entail gathering information about where trails are needed, taxing citizens to pay for the trails, negotiating with landowners over trail establishment, negotiating with environmentalists, cross country skiers, and other interest groups, employing people to build and maintain the trails, and legislating and enforcing compliance to the laws.

Government provision is likely to be inefficient, and the process of providing trails very slow. Overcoming the commons problem by government provision of the public good is not likely to be an optimal solution to the dilemma. As Gordon Tullock (1971) observes, competent government decision-making and service are themselves public goods.

COMMERCIAL PROVISION OF TRAILS

It is not clear that a system of user fees or systems to prevent trespassing are feasible as an overall solution, but legislation that would increase the rights of landowners to prevent trespassing and charge for use of their land would sometimes yield economies of scale significant enough to make snowmobile trails profitable. One local circumstance where user fees may prove feasible is where the area attracts winter tourism. Tourists are more likely to rent snowmobiles and they could be charged by bundling a rental with the sale of a trail pass. Tourists increase density, which may mean that the demand is sufficiently high to yield a return to a commercial trail. Today, the only commercial snowmobile trail exists in Funäsdalen, established with monies from the EU, the Swedish Environmental Protection Agency, and the local municipality. Opened to the public in January 2001, it is the best trail in Sweden and perhaps Northern Europe (Snowmobile 2: 2001). To use the trail, a snowmobiler buys a trail-pass for 1, 3 or 7 days or a season pass (the cost is 120, 250, 400, or 800 SEK. as of the season 2002/2003). The trail is 5 meters wide and 450 kilometers long. The cost of establishing it was 7.5 million SEK, or about 16,500 SEK per kilometer.¹¹ It remains to be seen whether user fees will cover maintenance costs, estimated to around 1 million SEK per year (www.funasdalsfjall.se/press/snowmob.htm).

PROVISION OF TRAILS BY SELF ORGANIZATION

¹¹ The february 2003 exchange rate was about \$1=8,50 SEK. A day pass cost about \$14 and a season pass about \$94. The per kilometer cost of establishing the trail was \$1,940.

The prisoner's dilemma is a half-truth. Real life is much richer. First of all, individuals can be both landowners and snowmobilers. More importantly, many snowmobilers understand and appreciate the concerns of landowners, and many landowners understand and appreciate that snowmobile driving is a benefit to their community.

Landowners and snowmobile drivers are involved in a repeated game. As is predicted in game theory, ongoing relations enable better outcomes (Axelrod 1984; Axelrod and Dion 1988). Self-organization or voluntary non-market cooperation is the third alternative, a decentralized and spontaneous solution (see Beito, Gordon and Tabarrok 2002; Ostrom 1997).

Snowmobile drivers need to mobilize enough volunteers and money to build and maintain trails. Since an organization is necessary to sustain voluntary mobilization of resources (McCarthy and Zald 1977; Zald and Ash 1966), the crucial organizational form in the non-market voluntary solution is the *snowmobile association*.

SNOWMOBILE ASSOCIATIONS

In Sweden there are two national snowmobile federations, Swedish Snowmobile Owners National Federation (SNOFED) and Swedish Motorcycle and Snowmobile Organizations (SVEMO). SVEMO is a branch of the Swedish National Federation of Sports, and has about 600 member organizations. Almost half, or about 280 organizations, are snowmobile oriented (www.svemo.se). SNOFED is smaller, and has about 150 member organizations. SNOFED caters to touring snowmobile drivers, while SVEMO caters the drag racing and cross fans.

The county of Jämtland has about 130,000 inhabitants. Most of the local snowmobile associations in Jämtland are members of SVEMO. In 1993, there were 48 associations in Jämtland that were members of the SVEMO and 22 associations that were not (Dannevall and Berglund 1993). The 48 associations had about 10,000 members. In 1997/98, 76 associations were members of the SVEMO, and they had between 15,000 and 22,000 members in 1999 (Anttila 1999). Although these figures include members that do not live in Jämtland and some double affiliations, it indicates that between 11 to 17 percent of the inhabitants are members. The situation in Jämtland is quite typical, which means that during the 1990s the growth of members to snowmobile associations, and the potential for voluntary work, has been impressive.¹²

THE PROVISION AND COSTS OF VOLUNTARY SNOWMOBILE TRAILS

In many northern parts of Sweden snowmobile trails have about the same total length as the network of public roads and are important as infrastructure. In the county of Jämtland snowmobile associations have provided an impressive amount of trail. In 1993, the trails extended to about 5,000 kilometers, almost as much as the public road network that cover 6,000 kilometers (Dannevall & Berglund 1993). According to the Swedish Environmental Protection Agency (SNV 1997), Swedish snowmobile trails amount to 42,000 kilometers (or about 26,000 miles). 2,000 kilometers are public trails, i.e. trails monitored by the state, county, or municipality.

¹² With the average per capita ratio of snowmobile ownership up north being 12 percent (see p. 1) the membership figures of Jämtland are quite impressive.

The remaining 40,000 kilometers are voluntary provided. Fifty percent of the voluntary trails (about 20,000 kilometers) are deemed to be of good quality.

The cost of construction varies, but the average has been estimated to be about 2,000 SEK per kilometer (SNV 1997). The annual maintenance cost is estimated at 200 SEK per kilometer, which includes only fuel costs for grooming. It is difficult to measure the amount of volunteer work used in maintenance. According to our interviews, however, about five person-hours is spent per kilometer per year on grooming trails. If we sum up the above, we find that the construction costs of snowmobile trails are about 80 million SEK. The yearly maintenance costs sum up to about 8 million SEK plus 200,000 hours of labor.

Overall, the value of the volunteer trails is substantial and impressive, especially considering that most trails exist in the sparsely populated northern countryside where the population is below average in income.¹³

IS THERE EVIDENCE THAT TRAILS ACTUALLY SOLVE THE PROBLEM?

An official state report says that the snowmobile drivers themselves have tried to resolve problems relating to snowmobile driving (SOU 1995:100, p. 53). A significant amount of volunteer work has been invested in establishing trails, in disseminating information to association members, and in educating people about the (then) voluntary driver's certificate for snowmobile drivers. The work of associations has produced positive results, according to the

¹³ The population in this economic periphery is less than 900,000 individuals, aging, decreasing, and poorer than the average Swede. The average income per year is between 200.000 and 220.000 SEK, which is well below the national average (www.scb.se).

investigators, but the results vary from one area to another. The investigators hold that it is important to encourage these kinds of voluntary efforts. It thus seems fair to say that voluntary provision of snowmobile trails has improved the situation.

The positive conclusion is supported by the results of our survey that was sent to all representatives of local divisions of the Swedish Federation of Farmers (LRF) in the northern part of Sweden (see Anttila 2000).¹⁴ Landowners say that snowmobile related problems have diminished as the trails have been established and the voluntary work intensified. Table 2 and Table 3 show this relationship on an aggregate level. We have aggregated the responses because the associations and trails diminish problems in places beyond the individual respondent's land.¹⁵

Table 2: Establishment of trails and decline of problems (n=122)

	Share of cases with no trails	Share of cases with no problems	Share of cases with serious problems
1986/87-1989/90	37%	10%	25%
1990/91-1993/94	21%	11%	17%
1994/95-1995/96	11%	18%	12%
1996/97-1997/98	3%	25%	7%
1998/99	3%	27%	6%

Table 3: Voluntary work provided by local snowmobile associations and the decline of problems (n=122)

	Share of cases with some work	Share of cases with intensive work	Share of cases with no problems	Share of cases with serious problems
1986/87-1989/90	34%	4%	10%	25%
1990/91-1993/94	52%	11%	11%	17%
1994/95-1995/96	55%	22%	18%	12%
1996/97-1997/98	58%	38%	25%	7%
1998/99	48%	31%	27%	6%

¹⁴ The survey was sent to 199 local LRF-associations, all associations in the northern municipalities and four municipalities in Dalarna where snowmobile driving is also common. After four reminders 122 associations had responded. 61,3 percent of the chosen associations thus responded to the questionnaire (Anttila 2000 p. 3).

Again, there are still problems related to snowmobile driving on private land, but problems have diminished. The LRF-representatives indicate a strong belief in snowmobile trails as a mean to solving snowmobile problems, as 98 percent hold that snowmobile trails are justified in their area (Anttila 2000, p. 8). The importance of snowmobile associations is also indicated by the landowners: 85 percent of the LRF-representatives say that snowmobile-association efforts to improve driving (e.g. by encouraging careful driving along the trails) are important or very important (Anttila 2000), and 85 percent say that the work provided by their local snowmobile association is very important or quite important in reducing damage to land (Anttila 2000, p.10).

SELF-ORGANIZATION AND SOCIAL MECHANISMS

Snowmobile drivers are not always landowners, but almost all of them know landowners or others who face problems from snowmobile driving. Local pressures build up and encourage snowmobile drivers to take action. Snowmobile drivers are not anonymous. They are neighbors, friends, or work mates that also happen to own and drive a snowmobile. In a similar fashion, landowners are not anonymous.

In these communities, social mechanisms such as reciprocity, reputation, and trust are likely to be effective in inducing social action (see Ostrom 1998). After all, one's local esteem is likely to increase if one shows willingness to be a good neighbor, i.e. to cooperate to solve community problems. Such social incentives are particularly strong in the small, homogeneous communities of northern Sweden. Homogeneity helps when promoting a common interest and worldview

¹⁵ A corresponding association is found on a case level as well.

(see Blau and Schwartz 1987; Festinger et. al. 1950; Fischer 1982), and smallness make face to face contact common. And as was suggested by Mancur Olson (1965), face to face interaction facilitates social selective incentives to overcome free rider problems.

Olson, however, overstated the limitations of social incentives because he assumed the relevant reference group of an individual to be the entire local community. Instead, the relevant group of others is the small group of which individuals are a part (Crouch 1982; Gould 1995; Hechter and Kanazawa 1993, Granovetter 1985; Sandell and Stern 1998). Snowmobile associations commonly recruit most of their members through pre-existing social networks (Snow et.al., 1980; Stark and Bainbridge 1980; Gould 1995; McAdam 1988; Freeman 1973; Sandell and Stern 1998).

In addition to the provision of trails, snowmobile associations provide other services to members (Ds 1994:36; SOU 1994:16; SNV 1997; SST 1996; SST 1997/98). They organize study circles on 'administration', 'how to arrange snowmobile competitions,' 'driving technique', 'safety', and 'laws and rule'. Additional subjects are 'environmental issues', issues of 'gender' and 'children', and 'drugs and alcohol'. Members of snowmobile associations in the county of Jämtland spent more than 2,000 man-hours attending such study circles in 1995/96 (SISU 1997). In addition, as of 1999, more than 75,000 drivers in Sweden had studied to get the voluntary driver's certificate. Beginning the 1st of January 2000, it became the law to have a special snowmobile driver's license. As of today, about 33,500 persons have a snowmobile license, and the associations are the main source of instructing and training future drivers.¹⁶ Being a member of a snowmobile association also means access to a variety of educational activities relating to one's interest in snowmobile driving. Thus, snowmobile associations are not only providing the public with snowmobile trails,

¹⁶ The number is according to Bosse Grönkvist at the Swedish National Road Administration. It includes both transformed voluntary certificates and new licenses. A person with a driver's license issued before 2000 need not a special snowmobile license.

but also provide an array of communal and educational benefits, from which 'free riders' are excluded.

Snowmobile associations reward contribution and, at least indirectly, expose free riders by publicly identifying the contributors. Many local associations make public the list of dues-paying members. And many local associations sell plastic stickers that can be proudly mounted on the snowmobile. In this way, those without stickers may be identified as free riders. Such sanctions work only if exposure of one's free riding upsets his conscience or damages his reputation in the community. Without such local accountability, and its accompanying social sanctions, it is not clear that exposure in itself is a meaningful way to reduce free riding. But it seems to be working in northern Sweden.

Associations can enhance social capital, group identity, and local 'good will'. They often offer to their communities various social activities such as snowmobile safaris, fishing competitions, rallies, pubs, and other festivities. They sometimes also provide social services like taking elderly or handicapped persons out on nature trips. Such social activities are often embedded in a local social network within which snowmobile driving is a way of life. In such villages there is no noticeable opposition between snowmobile drivers and landowners. Influential landowners can be members of the board of the local snowmobile association, and even be retail dealers of snowmobiles.

Indeed, the most successful cases, it seems, are villages in which a large part of the local community is involved in the snowmobile association. Lillhärdal is one example of a village where the snowmobile association is of social importance. The Lillhärdal association was formed in 1969 and with 200 members it is the largest and most energetic local community association. Association members have built 110 kilometers of trails and two shelters, and they often arrange safaris that are free to join. It is not even necessary to own a snowmobile, which means that the

elderly are welcome to join. Every year the association and the local church arrange an outdoor divine service up in the mountains, including a picnic for all who wish to come. The association and its members are also very involved in the local committee for community development (Lundström 1992).

Not all snowmobile associations achieve as great a local social significance, but 47 percent of the LRF-representatives knew of local snowmobile associations providing the local community with voluntary social work; snowmobile safaris for handicapped, activities with the local youth, outdoor divine services, or similar activities (Anttila 2000, p. 13).

Also, in some cases, the local government pays the fuel costs for trail grooming, and unemployed individuals can get unemployment benefits for helping the local association with trail maintenance. In other instances the municipality owns the equipment that snowmobile associations use to groom the trails.

Many snowmobile drivers in Sweden are not members of associations. In Kiruna, a municipality with one of the largest share of snowmobile owners in the population, only 5 percent of the snowmobile owners are members of the local snowmobile association. In land-area, Kiruna is the largest municipality in Sweden, but the population density is 0,81 square kilometers per person.¹⁷ Kiruna is also located in the far north, which means that they are beyond reach for most of the ski resort tourists. Snowmobile driving is definitely a way of life in Kiruna, but it is likely that the snowmobile association finds it difficult to recruit members because everyone drives snowmobiles. But, perhaps more importantly, the problems related to snowmobile driving

¹⁷ Population the 31 dec, 2001 was 23,844 and land area of the municipality is 19,446.78 km²

are insignificant due to the low density of people. There is simply little need for trails and no opposition to snowmobiling.¹⁸

SELF-ORGANIZATION AND THE OUTSIDE THREAT

Local solidarity and problem solving is not the only force at work. Sometimes local mobilization is triggered by conflict between the locals and the national authorities and activists of the more urban south. Oversimplifying somewhat, the central government authorities dislike snowmobiles, a dislike that often upsets northern inhabitants, with or without a snowmobile, since they find that central government shows little appreciation or knowledge of northern life and what the snowmobile has meant for their quality of life. Pedersen (1993), talking about culture and snowmobile driving up north in Finnmark, Norway, describes a similar conflict there between the north and central government authorities:

The snowmobile and the snowmobile conflict seem to be a key symbol for understanding basic contrasts in the Finnmark culture. It seems to express the essence of what it means to come from Finnmark for the “snowmobile people”; modernization and liberation from the more powerful south, and for a lifestyle that many men and women wish to perpetuate (p.62).

If mobilization of local communities on the northern countryside is linked to such a conflict, then group identity becomes an important factor. Indeed, in some cases small local villages have

¹⁸ In Finland, free riding has become economically obvious. In order to finance the Finnish snowmobile trails, there is a fee that snowmobile drivers have to pay. Yet, in 1997 only 5 percent of the drivers paid their fees, which may mean that some trails will be closed down.

mobilized almost all inhabitants against plans of the national government to establish national parks and reserve areas (e.g. Sandell 1995).

In Henvålen, in the Berg and Härjedalen municipalities, a nature reserve was planned in the 1980s, and at a board meeting 28/4 1997 the plans were discussed. The national administration suggested a reserve area where existing snowmobile trails could remain, but that snowmobile driving elsewhere should be restricted or possibly forbidden. Berg municipality accepted the suggestion, but not Härjedalen because the snowmobile associations wanted additional snowmobile trails in the area, to connect to other trail networks. A local mobilization of inhabitants in the area occurred. Names were collected on a protest list, and a writ was formulated opposing the establishment of the reserve area and expressing a concern that once a reserve area has been established, the trails might be removed.

In June, the county governor sent a letter to the national administration, The Swedish Environmental Protection Agency, proposing a solution in line with local public opinion. In a writ of October the same year, the Agency recommended the county administration to complete establishment of the nature reserve area in order to protect the forest, without any restrictions on snowmobile driving. The recommendation was followed by the county administration, although the Härjedalen municipality still opposed it, and in January 26, 1998 it was decided by the county administration that the nature reserve area should be established without restrictions on snowmobiling.¹⁹

The example illustrates that northerners are quite capable of mobilizing resistance to national government interference in their way of life, and that threats from outside may produce

¹⁹ LT Östersund, 1997: 29/4, 13/10, 5/11, 23/12; 1998: 27/1 17/2. Public documents from the county administration in Jämtland.

incentives for local northern communities to deal with the snowmobile issue themselves – a ‘better We than Them’ mechanism.

The controversy and sense of intrusion is seen in an exchange in an Internet chat room on the theme *Outlawing Snowmobiles*. “Gustav” writes “These toys should be immediately forbidden. Without exceptions.” He gets agreement from “Skier” who writes “ I am apt to agree with Gustav. We can manage without snowmobiles in this country. Draw the line at usage in production (forestry and reindeer herding) and forbid joy riding.” Of course, most writers oppose these suggestions, and tell “Stockholm” to “leave us alone”. One writer counter-attacks “I think we should forbid such ridiculous things as leisure boats in the 08-area [the area code to Stockholm]. They disturb us who wants to tourist in the Stockholm archipelago in a canoe. And they create a lot of backwash. They stink and pollute as well.” Roger agrees: “He, he, exactly. Away with the leisure boats. We have to think about all the poor swimmers that are hurt by the boat propellers, he, he. Besides, it is much more fun to drive a snowmobile than to sail.”²⁰

²⁰ The conversations took place at <http://www.skoter.com/forum> between january 7 and february 17 2002.

CONCLUSION

The results presented in this paper suggest that the solution to the problems of snowmobile generated externalities can be found within the existing Swedish legal institutions. An alternative proposal offered by Hultkrantz and Mortazavi (1998) is to give the local owners the rights and the incentives to invest and maintain their land. The idea is to give landowners the right to (try to) exclude snowmobilers and charge them for land -use. Northern landowners favor legislation to strengthen their property rights. According to a survey by Anttila (2000, p.13) 70 percent of landowner representatives agree (partly or completely) that leisure driving should be forbidden on private land.²¹ But among the same landowners, only 13 percent are supportive of user fees, and only 9 percent agree that landowners should handle the sale of licenses in that case, and a mere 3 percent think that landowners should manage the maintenance of trails were fees to be implemented (Anttila 2000, p. 14-15). The low interest in assuming responsibility for implementing a system of user-fees may reflect the success of trail provision by the snowmobile associations.

The snowmobile issue can be partly understood as a public good problem. Public officials in Sweden generally underscore the tragedy of the commons dilemma of the situation, but for various reasons, the government has been slow to respond. The legal institutions relating to the

²¹ This finding indicate that landowners may approve of trail establishing on their land because snowmobile drivers do not abstain from driving even if there were no trails, and landowners lack the legal option to prevent trespassing. Among the same landowner representatives, however, 65 percent also agree (partly or completely) to a statement that if people in the local community could not drive snowmobiles in their spare time, their quality of life would be severely reduced (Anttila 2000, p.12). Future research should try to establish the extent to which landowner cooperation is triggered by lacking alternatives or norms of neighborliness.

snowmobile have not changed since the early 1960s, and currently, driving on private land is not forbidden even if there are no trails.

The sub-optimal situation predicted by the simple free-rider theory may have characterized the 1980s. Since then, landowners and snowmobilers have voluntarily provided trails all over the northern countryside in Sweden, and though off-trail driving is legally permitted, landowner problems in many areas has decreased when trails are established. Many snowmobile drivers thus choose to stick to the trails and drive in a responsible way.

The Swedish case suggests that if communities are given time to respond to social problems, they can and will do so. In the northern countryside, self-organization appears to be a common social process making local communities quite able to overcome public good problems themselves.

At the core of the self-organization process are social mechanisms of esteem and reputation, which produce social incentives that help resolve free riding problems. In addition, attempts by national government to produce solutions to the problem have created a common enemy against whom local movements have found identity and mobilization.

This intensification of local group identity among inhabitants in local villages on the countryside helps reinforce the process of self-organization. This result accords with certain findings in a broader perspective, voluntary provision of roads. Daniel B. Klein (1990, p.808), for instance, concludes, with reference to voluntary provision of turnpike roads in 19th century America,

Early American communities overcame an apparent free rider problem in financing hundreds of turnpike companies. For companies organized after 1805, the hope of small return surely oiled the magnanimity of the turnpike contributor, but the central explanation for investment in these companies lies elsewhere. Community isolation,

citizen familiarity, and weak, decentralized government bred close social ties and an effective participatory ethic.

The voluntary provision of snowmobile trails in Sweden sums up to an impressive account of the potential force of non-market voluntary action in modern society, beyond government politics.

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